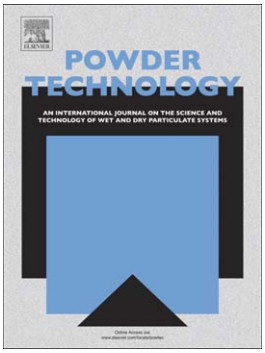

The Production of Dry Powder by the Sonocrystallisation for Inhalation Drug Delivery

Syed Anuar Faua'ad Syed Muhammad, Hussein Oubani, Ali Abbas, Hak-Kim Chan, Philip Chi Lip Kwok, Fariba Dehghani

PII: S0032-5910(13)00367-7
DOI: doi: 10.1016/j.powtec.2013.05.019
Reference: PTEC 9590

To appear in: *Powder Technology*

Received date: 27 September 2012
Revised date: 9 May 2013
Accepted date: 11 May 2013

Please cite this article as: Syed Anuar Faua'ad Syed Muhammad, Hussein Oubani, Ali Abbas, Hak-Kim Chan, Philip Chi Lip Kwok, Fariba Dehghani, The Production of Dry Powder by the Sonocrystallisation for Inhalation Drug Delivery, *Powder Technology* (2013), doi: 10.1016/j.powtec.2013.05.019

The Production of Dry Powder by the Sonocrystallisation for Inhalation Drug Delivery

Syed Anuar Faua'ad Syed Muhammad [1, 2], Hussein Oubani [1],
Ali Abbas [1], Hak-Kim Chan [3], Philip Chi Lip Kwok [4], Fariba Dehghani [1,*]

[1]*School of Chemical and Biomolecular Engineering,*
The University of Sydney, Sydney 2006, NSW, Australia
[2]*Department of Bioprocess Engineering, Faculty of Chemical Engineering,*
Universiti Teknologi Malaysia, 81310 Skudai, Johor Bahru, Johor, Malaysia
[3]*Faculty of Pharmacy, The University of Sydney, Sydney 2006, NSW, Australia*
[4]*Department of Pharmacology and Pharmacy, The University of Hong Kong*

*Corresponding author: E-mail: fariba.dehghani@sydney.edu.au

ABSTRACT

An anti-solvent sonocrystallisation technique was applied for the production of salbutamol sulphate fine particles for the dry powder inhaler (DPI) formulations. The effects of process variables, namely sonication power (watt, W) and volume ratio of anti-solvent to solute solution on the particle characteristics of salbutamol sulphate were investigated. Depending on process variables, fine particles of salbutamol sulphate with a size distribution in a range of 2 μm to 5 μm were successfully produced. Spray drying of sonocrystallised anti-solvent suspension produced micron size crystalline salbutamol